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APPLICATION NO.	F	ILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO	
10/709,348		04/29/2004	David D. Needelman	03-0963 (BOE 0465 PA) 3347		
27256	7590	02/24/2006		EXAMINER		
ARTZ & A	ARTZ, P.C	<b>C.</b>	BEAULIEU, YONEL			
28333 TEL	EGRAPH I	RD.				
SUITE 250			ART UNIT	PAPER NUMBER		
SOUTHFIE	ELD, MI 4	48034	3661			
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DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)					
		10/709,348	NEEDELMAN ET AL.					
	Office Action Summary	Examiner	Art Unit					
		Yonel Beaulieu	3661					
Period fo	The MAILING DATE of this communication apports. Reply	ears on the cover sheet with the c	orrespondence address	•				
WHIC - Exter after - If NC - Failu Any	ORTENED STATUTORY PERIOD FOR REPLY CHEVER IS LONGER, FROM THE MAILING DANSIONS of time may be available under the provisions of 37 CFR 1.13 SIX (6) MONTHS from the mailing date of this communication. O period for reply is specified above, the maximum statutory period were to reply within the set or extended period for reply will, by statute, reply received by the Office later than three months after the mailing ed patent term adjustment. See 37 CFR 1.704(b).	ATE OF THIS COMMUNICATION 36(a). In no event, however, may a reply be time will apply and will expire SIX (6) MONTHS from the cause the application to become ABANDONE	l. ely filed the mailing date of this communication. (35 U.S.C. § 133).					
Status								
1)[	Responsive to communication(s) filed on 29 Ap	oril 2004.						
	•	action is non-final.						
	Since this application is in condition for allowance except for formal matters, prosecution as to the merits is							
<i>,</i> —	closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.							
Dispositi	on of Claims							
4)⊠	Claim(s) 1-40 is/are pending in the application.							
•	4a) Of the above claim(s) is/are withdrawn from consideration.							
	Claim(s) is/are allowed.							
	Claim(s) 1-40 is/are rejected.							
· ·	Claim(s) is/are objected to.							
8)	Claim(s) are subject to restriction and/or	election requirement.						
Applicati	on Papers							
	The specification is objected to by the Examiner	-						
	The drawing(s) filed on <u>29 <i>April 2004</i></u> is/are: a)[		v the Examiner					
		· · · · · · · · · · · · · · · · · · ·						
	Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).							
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.								
Priority u	nder 35 U.S.C. § 119							
12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:								
	<ul><li>1. Certified copies of the priority documents have been received.</li><li>2. Certified copies of the priority documents have been received in Application No</li></ul>							
	<ul><li>2. Certified copies of the priority documents</li><li>3. Copies of the certified copies of the priori</li></ul>	• •						
•	· · · · · · · · · · · · · · · · · · ·	•	a in this National Stage					
application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.								
		or the continue copies het received	••					
Attach	(c)		•					
Attachment  1) Notice	e of References Cited (PTO-892)	4) Interview Summary (	PTO_413\					
2) 🔲 Notice	e of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Dat	e					
	nation Disclosure Statement(s) (PTO-1449 or PTO/SB/08) No(s)/Mail Date 4/29/04&6/21/04.	5)  Notice of Informal Pa	tent Application (PTO-152)					

Claims 1 - 28 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is not clear as to whether the "ground station" (line 1) is the same as the one recited at line 4.

Any claims linked to claim 1 is necessarily rejected.

Regarding claim 15, "...a bright object, or a plurality of objects..." (line 4) is not understood. It is not clear as to the 'bright object' is different than the 'plurality of objects.' Also, it is not readily clear whether the determined <u>vehicle inertial</u> attitude (line 16) is the same as the specific <u>vehicle attitude</u> (as established at line 1).

Claims that are dependent upon the claim 15 are necessarily rejected.

## Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

<sup>(</sup>b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1 – 7, 9, 10, 15 – 21, 23, 24, 29 – 32, 34, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Bender et al. (US 5,412,574).

Regarding claims 1, 7, 9, 10, 15, 16, 21, 23, 24, 29, and 30, Bender teaches a method of determining a vehicle attitude or angular velocity, comprising: calculating (using algorithm in processor 14), on-board the vehicle (the vehicle being spacecraft 100; col. 7, lines 16 – 20 at least), a stayout zone associated with a bright object, or a plurality of objects and determining a star in the stayout zone (see figs. 3a and 3b; col. 5, lines 38 – 63 at least); and determining a vehicle inertial attitude or angular velocity, based on star measurements of sensed or tracked stars (tracked by item 12; col. 4, lines 25 – 41 at least), excluding (separating) the star within the stayout zone (col. 4, line 66 – col. 5, line 33); Bender further teaches listing the stars inside the zone (based on star ID) and flagging a star catalog (22; see fig. 2; col. 4, lines 1 – 35 at least). Bender further teaches controlling the vehicle attitude in response to the vehicle inertial attitude or velocity (to place item 100 in orbit inherently requires a minimum angular orbital velocity; note col. 5, lines 5 – 32 at least). Bender further teaches orientation determination of the star trackers (col. 3, lines 57 – 68; col. 5, lines 55 – 63; and col. 6, lines 18 – 22 at least). Moreover, Bender teaches the exclusion of a star being based upon the properties of the star or the object (Bender teaches which star to detect and determines which to track; col. 4, lines 10 – 16 at least).

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Regarding claims 2 - 4, 16 – 18, 31, 32, and 34, Bender's teaching further comprises a circular stayout zone (considering orbital path of spacecraft 100 as illustrated in fig. 1a; col. 3, lines 13 – 18 at least) and a non-circular stayout zone (col. 8, lines 23 – 39 at least).

Regarding claims 5, 6, 19, 20, and 14, Bender's exclusion is performed for a fixed and non-fixed period of time (col. 8, lines 40 – 54).

## Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8, 11 – 14, 22, 25 – 28, 33, and 36 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bender et al. (US 5,412,574).

As discussed above, Bender teaches all of the limitations except for the property being brightness having a first and a second magnitude and calculating one circular rectangular, different shape, stayout zone.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention a star is a known self-luminous, self-containing mass of gas

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representing twinkling points of light that can be seen at nights with different intensity (magnitude) and that Bender teaches a method/system that performs equally well in order to track a star and determine a vehicle attitude.

## Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yonel Beaulieu whose telephone number is (571) 272-6955. The examiner can normally be reached on M-W 9-3; F 9-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas BLACK can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yonel Beaulieu Primary Examiner Art Unit 3661